

## **Orthodontics**

**It teaches the basics of orthodontics, diagnosis and treatment, as well as prevention.**

**Theoretical: The beginning explains the methods of growth and emergence of teeth, their ages, natural movements, the structural relationship and their impact on the arrangement of the teeth, followed by muscular and behavioral effects and the impact of harmful habits on them**

## **Different Learning Methods in the Department of Dentistry**

**A- Auditory method: This method depends on communicating information in the form of sounds that are heard by the learner for analysis and storage.**

**B- Visual method: in which information is communicated by displaying color images, videos or any form of visual educational aids.**

**C- Reading method: It is one of the methods that depend on reading information to understand and store it.**

**D. Interdisciplinary professional education where dental students collaborate with other healthcare professionals, to promote a holistic approach to patient care.**

## **Different evaluation methods for students in the Department of Dentistry**

**Daily tests with multiple-choice questions for subjects that require practical skills.**

**B- Daily exams with practical questions.**

**C- Semester and final exams.**

**D- Setting grades for the assigned homework .**

**H- Grades of participation of questions competing for the subjects of study.**

**G- Daily evaluation of the student's work in scientific laboratories and educational clinics.**

## **Learning Outcomes for Dental Courses**

**Using health information technology in oral and dental health care effectively.**

**Apply appropriate professional, ethical and legal standards in the provision of patient care in accordance with health care rules and regulations.**

**Providing graduates with scientific knowledge and professional skills in the fields of oral and dental surgery, dental prosthesis, dental preservation, orthodontics, pediatric dentistry, periodontal pathology and surrounding tissues, as well as radiology**

Knowledge of the principles of oral and dental health and understanding of the development, prevention and treatment of related diseases

Health promotion and disease prevention to serve the community.

Integrating basic and medical sciences into healthcare practice.

Develop decision-making and problem-solving skills in healthcare.

Evaluate the state of oral and dental health and the medical condition of the patient, request the necessary diagnostic analyzes, and interpret the results of various analyzes to reach the appropriate diagnosis.

Prepare a care plan for the prevention and treatment of diseases taking into account the needs of the patient.

Demonstrate competence in performing procedures safely in all aspects of dentistry and prevent injuries arising from treatment.

Providing graduates with theoretical knowledge and laboratory and clinical skills that increase the effectiveness of diagnosis.

Preparing dental graduates and training them to become distinguished in various fields of dentistry.

Lesson name and units

<i>Subject</i>	<i>1<sup>st</sup> Semester hours/week</i>		<i>2<sup>nd</sup> Semester hours/week</i>		<i>Units</i>	<i>Code</i>
	<i>Theory</i>	<i>Practical</i>	<i>Theory</i>	<i>Practical</i>		
<b>5. Orthodontics</b>	1	3	1	3	5	OD432

*Department of Orthodontics*

**A- Basic information**

<b>1-Subject title</b>	<b>Orthodontics</b>	
<b>2-Number of credits</b>	Theory:2	Laboratory:4
<b>3-Number of contact hours</b>	Theory:1 h/wk.	Laboratory:4 h/wk
<b>4-Subject time</b>	Fourth Year	

<b>No.</b>	<b>Title of the lectures</b>	<b>Hours</b>
<b>1</b>	<b>Introduction</b> - Definition of orthodontics - Definition of occlusion, normal, ideal and malocclusion	<b>1</b>
<b>2</b>	- Six keys of normal occlusion - Aims of orthodontic treatment	<b>1</b>
<b>3</b>	- Important orthodontic definitions	<b>1</b>

	- Classification of malocclusion	
4	<b>Growth and development</b> - Definitions of growth, development and maturity - Stages of development (ovum till birth)	1
5	- Theories of bone growth - Definitions of growth site, growth center, displacement, and drift	1
6	- Growth curve and maximum growth spurt - Prenatal and postnatal growth and development of hard tissues	1
7	- Prenatal and postnatal growth and development of soft tissues - Developmental anomalies	1
8	- Jaw rotation - Compensation and adaptation	1
9	<b>Deciduous and permanent dentition</b> a-Stages of tooth development: (Formation, calcification and root completion)	1
10	b-Tooth eruption (stages and theories), Sequences and timing of eruption	1
11	<b>Development of occlusion</b> a. new born oral cavity. b. Deciduous dentition stage - Dental changes till 6 years of age.	1
12	c. Early mixed dentition stage - eruption of first molars and incisors. d. Late mixed dentition stage - eruption of canines and premolars e. Permanent dentition - eruption second and third molars.	1
13	<b>Etiology of malocclusion:</b> -Genetic and inherited etiological factors of malocclusion	1
14	-Classification of etiological factors a. General factors i. Skeletal factors	1
15	ii. Soft tissue factors	1
16	iii. dental factors	1
17	b. Local factors (definitions without treatment)	1
18	<b>Tooth movement</b> a. Tissue changes associated with tooth movement: i. Histology of periodontium ii. Theories of tooth movement b. Accelerated tooth movement.	1
19	c. Biomechanics i. Force (application, type, magnitude, duration and direction) ii. Center of resistance and rotation, moment of force and moment of couple. iii. Types of tooth movement iv. Rate of tooth movement and factors affecting it.	1
20	d. iatrogenic effect of tooth movement (pain, mobility, pulp effect, root resorption, white spot lesions).	1
21	<b>Biomechanics</b>	1

22	<b>Anchorage</b> (definition, indications, types)	1
23	<b>Orthodontic appliances</b> a. Overview: i. passive orthodontic appliances (habit breaker, retainer and space maintainer) ii. active orthodontic appliances (removable, fixed, orthopedic and myofunctional, and combination) iii. Other active appliances: space regainer, Invisalign	1
24	b. Removable Orthodontic Appliance: i. Properties of various components (SS wire, acrylic) ii. Components: 1) active components (springs, screws and elastics) 2) retentive components (clasps) 3) acrylic base plate and bite planes 4) anchorage	1
25	iii. Design of a removable orthodontic appliance iv. Construction of a removable orthodontic appliance v. Soldering and welding vi. Post-insertion instructions and guidelines	1
26	c. Fixed orthodontic appliance: Types, components, advantages, limitation, biomechanics, banding vs. bonding	1
27	d. Orthopedic and Myofunctional appliance: Types, components, advantages, limitation, mode of action	1
28	<i>continue</i> Orthopedic and Myofunctional appliance: Types, components, advantages, limitation, mode of action	1
29	f. Retention and retainers Retention (definition, reason, time)	1
30	Retainers (Hawley, clear overlay, positioners, permanent fixation, precision)	1
<b>Total</b>		<b>30</b>

### *Clinical requirements*

Lab number	Study unit title	Hours
1	Seminar 1 (Introduction to orthodontics)	4
2	Seminar 2 (Types of orthodontic appliances ) (Introduction to removable appliance)	4
3	Seminar 3 (Orthodontic Pliers)	4
4	Seminar 4 (Stainless steel alloy properties)	4
5	Seminar 5 (Principles of wire bending)	4
6	Wire bending training	4

7	Z-Spring	4
8	Recurved Z-Spring	4
9	Review	4
10	Simple Finger Spring	4
11	Modified Finger Spring	4
12	Review	4
13	Buccal Canine Retractor	4
14	Modified Buccal Canine Retractor	4
15	Review	4
16	Quarterly Exam	4
17	Adams' Clasps on Upper Right 1 <sup>st</sup> Molar	4
18	Adams' Clasps on Upper Left 1 <sup>st</sup> Molar	4
19	Adams' Clasps on Upper Right 1 <sup>st</sup> Premolar	4
20	Double Adams' Clasps on Upper Right 2 <sup>nd</sup> premolar & 1 <sup>st</sup> molar	4
21	Review	4
22	Fitted Labial Arch	4
23	Hawley Arch	4
24	Review	4
25	Robert's Retractor	4
26	Acrylic baseplate	4
27	Soldering and Welding	4
28	Review	4
29	Quarterly Exam	4
30	Final Exam	4
<b>Total</b>		<b>120</b>